

REMARKS

By the above amendment, the independent claims have been amended to clarify features of the present invention and new dependent claims 8 - 17 have been added. More particularly, as described in the specification, the present invention is directed to an active matrix liquid crystal display device utilizing the in-plane switching mode. That is, as described in the "Background Of The Invention" at pages 1 and 2 of the specification, while in conventional active matrix type liquid crystal display, electrodes are provided on opposing substrates such that an electric field is applied to the liquid crystal so as to be almost perpendicular, in the in-plane switching mode, the electrodes are provided on one of the opposing pair of substrates, and the orientation of the electric field is almost parallel to the substrate. It is noted that the in-plane switching mode with the electric field 113 having a component which extends substantially in parallel to the one substrate 101 having the electrodes 102 and 103 provided thereon is illustrated in Figs. 1a and 1b of the drawings, for example, and described at pages 15 - 17 of the specification for example. Thus, by the present amendment, each of the independent claims 1 - 5 have been amended to clarify the features that both of the pixel electrodes and the common electrodes are supported on one of the pair of substrates, for supplying an electric field to the liquid crystal layer, wherein the electric field has a component which extends substantially in parallel to the one of the pair of substrates. Furthermore, dependent claims have been added which recite the feature that the common electrodes, such as the common electrodes 402 in Fig. 4(b), for example, and the pixel electrodes 403 are provided in different layers supported on the one substrate 401 of the pair of substrates, and that the common electrodes and the pixel electrodes are arranged in a substantially nonoverlapping relation, as illustrated.

The newly added dependent claims 8 - 17 recite the aforementioned features of the present invention.

As to the rejection of claims 1 and 3 under 35 USC 102(b) as being anticipated by Ilcisin et al (US 5,414,440); the rejection of claims 5 - 7 under 35 USC 103(a) as being unpatentable over Ilcisin et al; and the rejection of claims 2 and 4 under 35 USC 103(a) as being unpatentable over Ilcisin et al, further in view of Ferguson (US 5,132,815); such rejections are traversed insofar as they are applicable to the present claims and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

With regard to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a

prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Turning to Ilcisin et al, the Examiner contends that "Ilcisin teaches a liquid crystal display device comprising: a pair of substrates 24, 26, column 6, lines 10 - 20); a liquid crystal layer (column 28, lines 21 - 25) filled between said pair of substrates; and a plurality of pixel electrodes (column electrodes 20), column 7, lines 65 - 70 and common electrodes formed on one of the substrates (reference electrodes 162a) connected to a common electrical reference potential, (column 8, lines 3 - 15) for supplying an electric field to said liquid crystal layer ..." (emphasis added). Applicants submit that the Examiner has misconstrued the original language of the independent claims with respect to the feature of the pixel electrodes and the common electrodes being formed on "one of said pair of substrates" (emphasis added) as originally recited in the claims of this application. That is, as illustrated in Fig. 1a of the drawings of this application, and as described above, the pixel electrodes 103 and the common electrodes 102 are provided on the one substrate 101 of the pair of substrates 101 and 101'. On the other hand, Ilcisin et al, as clearly illustrated in Fig. 2 thereof, and as described in column 6, lines 12 - 17 provides that, "Column electrodes 20 are deposited on a major surface of a first electrically nonconductive, optically transparent substrate 24, and channels 22 are inscribed in a major surface of a second electrically nonconductive, optically transparent substrate 26." (emphasis added), and as described at column 8, lines 6 - 8, "each one of the channels 22 has a pair of thin, narrow metal electrodes 162(a) and 162(b)." (emphasis added). Thus, in Ilcisin et al, the common electrodes 20 are formed on the first substrate 24 whereas the reference electrodes 162a and 162b are formed on an opposing second substrate 26 having the liquid crystal layer 28 disposed therebetween. Thus, Ilcisin et al, in the sense of 35 USC 102 does not provide for pixel electrodes and common electrodes formed on one of the pair of substrates, as

previously set forth and further, does not disclose or teach in the sense of 35 USC 102 or 35 USC 103 "a plurality of pixel electrodes and common electrodes, both of said pixel electrodes and said common electrodes being supported on one of said pair of substrates" as now recited in each of independent claims 1 - 5 of this application, and all claims patentably distinguish thereover.

Additionally, applicants note that the structural arrangement of Ilcisin et al provides for an electric field extending substantially perpendicular to the pair of substrates, and by the present amendment, each of the independent claims has been amended to recite the feature of "said electric field having a component which extends substantially in parallel to said one of said pair of substrates" which is a feature of in-plane switching, and which is contrary to the disclosure of Ilcisin et al in the sense of 35 USC 102 and/or 35 USC 103. Thus, applicants submit that all claims patentably distinguish over Ilcisin et al in the sense of 35 USC 102 and 35 USC 103, and should be considered allowable thereover.

Furthermore, with respect to the recited features of claims 1 and 3 concerning response time, and the Examiner's contentions that "A liquid crystal display configuration with a response time between a lowest brightness level and a highest brightness level, or between gray levels, of less than 16.7 millisecond, is expected because Ilcisin teaches that a data setup period of less than 1.0 microsecond is achieved" (emphasis added), applicants note that as described in Ilcisin et al at column 12, lines 5 - 10, the data set up time is defined as "the time during which data driver 32 slews between the compensating signal values for the previous line and the data drive signal values of the currently strobed line and develops on output amplifiers 30 the analog data drive voltage signals that are applied to common electrodes". Applicants submit that this means that the data setup time is a

switching time of signal input, and therefore, the time is so small as to be less than 1.0 microsecond. On the other hand, the response time between a lowest brightness level and a highest brightness level, or between gray levels, is a response time of liquid crystal molecules. Normally, the liquid crystal molecules cannot move within such a short time period as 1.0 microsecond. In other words, the response time recited in the present invention is a moving speed of liquid crystal molecules, and applicants note that the recited feature of "16.7 ms" of the claims of this application, is more than 10,000 times larger than the data set up time in Ilcisin et al. Thus, irrespective of the Examiner's contentions, such features are also not disclosed or taught by Ilcisin et al in the sense of 35 USC 102 and 35 USC 103. As such, applicants submit that all claims patentably distinguish over Ilcisin et al in the sense of 35 USC 102 and 35 USC 103 and should be considered allowable thereover.

With respect to the addition of Fergason to Ilcisin et al, irrespective of whether or not this patent teaches a liquid crystal color display device where dyes are added to the liquid crystal to provide color transmission, Fergason, like Ilcisin et al, discloses as shown in Fig. 2 thereof, electrodes 11a provided on one of a pair of substrates and electrodes 11b provided on an opposing substrate of the pair of substrates, with an electric field being applied across the liquid crystal material so as to extend in a perpendicular direction to the substrates. Thus, the combination of Ilcisin et al and Fergason fails to overcome the deficiencies of Ilcisin et al, as pointed out above and the proposed combination fails to provide the claimed structural features of the independent and dependent claims of this application, in the sense of 35 USC 103. Accordingly, applicants submit that all claims patentably distinguish

over this proposed combination of references in the sense of 35 UCS 103 and should be considered allowable thereover.

With respect to the dependent claims including the dependent claims 6 and 7, as originally provided and the newly added dependent claims 8 - 17, irrespective of the Examiner's position, the cited art does not disclose or render obvious the recited feature concerning distance L, as set forth in claims 6 and 7 or the feature concerning the pixel electrodes and common electrodes being provided in different layers which are supported on the one substrate and that the pixel electrodes and the common electrodes are arranged in substantially nonoverlapping relation in the different layers, which features are not disclosed or taught in the cited art. Thus, the dependent claims recite further features which patentably distinguish over the cited art in the sense of 35 USC 103 and should be considered allowable thereover.

As to the rejection of claims 1 - 7 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 2, 19 - 20, 23, 25 of US Patent No. 6,423,385, as recognized by the Examiner, such rejection can be overcome by the submission of a terminal disclaimer. Without acquiescing in the propriety of the obviousness-type double patenting rejection as set forth in order to expedite issuance of this application, applicants submit herewith a terminal disclaimer and the appropriate fee therefor.

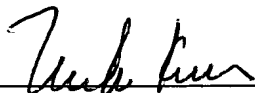
In view of the above amendments and remarks and the submission of the terminal disclaimer, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing

of this paper, including extension of time fees, to the deposit account of Antonelli,
Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.38252CC2),
and please credit any excess fees to such deposit account.

Respectfully submitted,

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